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ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: NOVEL IFNGAMMA-LIKE POLYPEPTIDES

(57) Abstract: The present invention discloses novel open reading frames (ORFs) in human genome encoding for ORFs character-  
ized for polypeptides having at least one activity of human Interferon gamma, and reagents related thereto including variants and  
fragments of said polypeptides, as well as the encoding nucleic acids and ligands directed against them. The invention provides  
methods for identifying and preparing these molecules, for manufacturing pharmaceutical compositions containing them, and for  
using them in the diagnosis, prevention and treatment of diseases.



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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/50939

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K14/57 C12N15/11 C12N15/62 A61K38/21

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K C12N A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, EMBL, WPI Data, PAJ, BIOSIS, MEDLINE, EMBASE, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 03/055913 A (ARES TRADING SA ;POWER CHRISTINE (FR); PHELPS CHRISTOPHER BENJAMIN) 10 July 2003 (2003-07-10)  INSP037 displays 82.4% identity to SEQ. ID. NO: 156 and has 6 non-conservative substitutions. the whole document	1, 9, 10, 22-26, 29, 33-37, 39-41
X	DATABASE EMBL 'Online! 12 December 1997 (1997-12-12) HEATH P.: "Human DNA sequence from clone RP1-192p9 on chromosome Xp11.23-11.4" retrieved from EBI Database accession no. AL020989 XP002248668 the whole document	22, 23
-/-		



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

### \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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\*Z\* document member of the same patent family

Date of the actual completion of the international search

14 June 2004

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01/07/2004

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/50939

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE EMBL 'Online!  8 October 1996 (1996-10-08)  DAVIES J. : "Human DNA sequence from clone  LLOXNC01-160A4 on chromosome X"  retrieved from EBI  Database accession no. Z80900  XP002284300  100% identity between nt. 21975 and 22334  over the whole sequence of SEQ. ID. NO: 9</p>	20-23, 26
X	<p>DATABASE EMBL 'Online!  18 June 1999 (1999-06-18)  MAHAIRAS G.G., WALLACE J.C., SMITH K. ET  AL.: "Sequence-tagged connection: a  sequence approach to mapping and scanning  the human genome."  retrieved from EBI  Database accession no. AQ607444  XP002284301  99.95% identical to SEQ. ID. NO: 9  the whole document</p>	22, 23
A	<p>WO 01/57276 A (CHEN WENSHENG ; HANZEL DAVID  K (US); PENN SHARRON G (US); RANK DAVI)  9 August 2001 (2001-08-09)  the whole document  &amp; DATABASE EMBL 'Online!  9 August 2001 (2001-08-09)  PENN S.G., HANZEL D.K., CHEN W., RANK  D.R.: "Human genome-derived single exon  nucleic acid probes for analyzing gene  expression in human bone marrow."  retrieved from EBI  Database accession no. AAM70428  XP002248680  SEQ.ID.NO: 30734 shown 85.7% with SEQ. ID.  NO: 156 over 49 aa.</p>	
A	<p>WO 01/75067 A (HYSEQ INC ; LIU CHENGHUA  (US); TANG Y TOM (US); DRMANAC RODOJE T  (U) 11 October 2001 (2001-10-11)  &amp; DATABASE EMBL 'Online!  11 October 2001 (2001-10-11)  DRMANAC R.T., LIU C., TANG Y.T.: "Novel  human diagnostic protein #134"  retrieved from EBI  Database accession no. ABG00143  XP002248681  87.8% identity with SEQ. ID. NO: 31</p>	

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP 03/50939

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 37, 38, 41  
because they relate to subject matter not required to be searched by this Authority, namely:  
see FURTHER INFORMATION sheet PCT/ISA/210
2. ☒ Claims Nos.: 13, 14, 16-18, 20, 23-27, 30, 31, 33-41, 47  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

## Continuation of Box I.1

Although claims 37,38 and 41 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

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## Continuation of Box I.1

Claims Nos.: 37,38,41

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

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## Continuation of Box I.2

Claims Nos.: 13,14,16-18, 20, 23-27,30,31, 33-41,47

Present claims 13,14,16-18, 20, 23-27,30,31, 33-41,47 relate to an extremely large number of possible compoundss. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the antibodies, antisense oligonucleotides and siRNAs.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/50939

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03055913	A	10-07-2003	WO 03054012 A2	03-07-2003
			WO 03055912 A2	10-07-2003
			WO 03055913 A2	10-07-2003
WO 0157276	A	09-08-2001	AU 3087801 A	14-08-2001
			AU 3087901 A	14-08-2001
			AU 3088001 A	14-08-2001
			AU 3088101 A	14-08-2001
			AU 3088201 A	14-08-2001
			AU 3088301 A	14-08-2001
			AU 3275701 A	14-08-2001
			AU 3275801 A	20-11-2001
			AU 3275901 A	14-08-2001
			AU 3276001 A	14-08-2001
			AU 3311401 A	14-08-2001
			AU 3658901 A	14-08-2001
			AU 6343201 A	11-12-2001
			AU 9295701 A	02-04-2002
			EP 1309723 A2	14-05-2003
			EP 1309724 A2	14-05-2003
			EP 1292704 A2	19-03-2003
			EP 1325149 A2	09-07-2003
			EP 1292705 A2	19-03-2003
			EP 1290216 A2	12-03-2003
			EP 1341930 A2	10-09-2003
			EP 1332224 A2	06-08-2003
			EP 1325150 A2	09-07-2003
			EP 1309725 A2	14-05-2003
			EP 1290217 A2	12-03-2003
			GB 2361238 A , B	17-10-2001
			GB 2373500 A	25-09-2002
			GB 2374929 A	30-10-2002
			GB 2383043 A	18-06-2003
			GB 2375539 A	20-11-2002
			GB 2375111 A	06-11-2002
			GB 2374872 A	30-10-2002
			GB 2378754 A	19-02-2003
			GB 2382814 A	11-06-2003
			GB 2385053 A	13-08-2003
			GB 2376018 A	04-12-2002
			GB 2376237 A	11-12-2002
			GB 2380197 A	02-04-2003
			JP 2004501617 T	22-01-2004
			WO 0157270 A2	09-08-2001
			WO 0157271 A2	09-08-2001
			WO 0157272 A2	09-08-2001
			WO 0157273 A2	09-08-2001
			WO 0186003 A2	15-11-2001
			WO 0157274 A2	09-08-2001
			WO 0157275 A2	09-08-2001
			WO 0157276 A2	09-08-2001
WO 0175067	A	11-10-2001	AU 3486501 A	14-08-2001
			AU 3995501 A	12-09-2001
			AU 4925101 A	15-10-2001
			AU 4972801 A	15-10-2001
			AU 5119401 A	15-10-2001
			AU 5521401 A	15-10-2001

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0175067	A	CA 2399681 A1	09-08-2001
		CA 2404501 A1	11-10-2001
		CA 2404555 A1	11-10-2001
		EP 1254266 A1	06-11-2002
		EP 1268762 A1	02-01-2003
		EP 1268510 A2	02-01-2003
		JP 2004502403 T	29-01-2004
		JP 2004500120 T	08-01-2004
		WO 0157266 A1	09-08-2001
		WO 0164839 A2	07-09-2001
		WO 0175067 A2	11-10-2001
		WO 0175064 A2	11-10-2001
		WO 0174836 A1	11-10-2001
		WO 0175093 A1	11-10-2001
		US 2004048249 A1	11-03-2004
		US 2003092112 A1	15-05-2003
		US 2003087370 A1	08-05-2003
		US 2003096279 A1	22-05-2003
		US 6436703 B1	20-08-2002
		US 2002061567 A1	23-05-2002
		US 2003180722 A1	25-09-2003
		US 2002146757 A1	10-10-2002